A decision tree was developed with partitioning the results of a 1–2 (categorical) target variable. Under node 0, the brain-derived neurotrophic factor (BDNF) expression level further characterised the target variable: those whose BDNF levels were \(<0.0042\) were likely to have bipolar disorder (70% v. 30%) and those whose BDNF levels were \(>0.0042\) were likely to have major depressive disorder (MDD) (9.1% v. 90.9%). Therefore if we stopped at this cut-point of this node level (node 1 and node 2), the true rate classified as bipolar disorder was 33.33% (7/21) and the true rate classified as MDD was 97.90% (140/143). Under node 2, those whose BDNF levels were \(>0.0042\) and plasma BDNF levels \(>2.785\) were likely to have MDD (4.7% v. 95.3%), and those whose BDNF levels were \(<0.0042\) and plasma BDNF levels \(>2.785\) were also likely to have MDD (12.2% v. 87.8%). Using this rule, whatever the plasma BDNF values were, it was more probable to be categorised into the MDD group. Under node 3, those whose plasma BDNF levels were \(<2.785\) and BDNF levels were \(>0.0042\) were likely to have MDD (11.5% v. 88.5%), and those whose plasma BDNF levels were \(<2.785\) and BDNF levels were \(<0.0042\) were likely to have MDD (0.0% v. 100.0%). Therefore using this rule, there was a higher probability to be categorised into the MDD group when BDNF expression levels were \(<0.0064\) compared with those whose levels were \(>0.0064\). Under node 4, those whose plasma BDNF levels were \(>2.785\) and BDNF levels were \(<0.0078\) were likely to have bipolar disorder (66.7% v. 33.3%), and those whose plasma BDNF levels were \(>2.785\) and BDNF levels were \(<0.0078\) were likely to have MDD (8.3% v. 91.7%). Thus, under this condition, the true rate classified as bipolar disorder was 36.36% (4/11), and the true rate classified as MDD was 97.47% (77/79). Under node 8, those whose BDNF expression levels were \(<0.0107\) and \(<0.0076\) were likely to have MDD (10.3% v. 89.7%). Those whose BDNF levels were \(>0.0107\) were likely to have MDD (0.0% v. 100.0%).